Document WAC/022(31.03.09)

UNITED STATES

DRAFT PRELIMINARY VIEWS ON WRC-11

WRC-11 Agenda Item: 1.18 to consider extending the existing primary and secondary radiodetermination-satellite service (space-to-Earth) allocations in the band 2 483.5-2 500 MHz in order to make a global primary allocation, and to determine the necessary regulatory provisions based upon the results of ITU-R studies, in accordance with Resolution **613 (WRC-07)**;

ISSUE: This agenda item invites the ITU-R to conduct appropriate studies to determine whether a global primary allocation for the radiodetermination-satellite service is compatible with other services using the 2483.5 – 2500 MHz band.

BACKGROUND: The 2483.5-2500 MHz band is currently allocated, globally on a Primary basis, to fixed, mobile and mobile-satellite services. In addition, in Regions 2 and 3 there are Primary allocations to the radiolocation service with a Secondary allocation to that service in Region 1. The radiodetermination-satellite service is allocated on a Primary basis in Region 2 and on a Secondary basis in Region 1, in the space-to-Earth direction. Footnote 5.400 grants a Primary allocation to the radiodetermination-satellite service, in the space-to-Earth direction, to a number of countries in Regions 1 and 3 subject to coordination under No. **9.21**.

The 2483.5 – 2500 MHz band is used by the mobile-satellite service, in the space-to-Earth direction, to provide communication service to remote and underserved locations. This allocation was made at the 1992 World Administrative Radio Conference with systems being designed and implemented by 1998. Service to these remote and underserved areas is critical to their continued development and, often times, represents the only means of communication available in these areas.

In other parts of the world, fixed and mobile services are active in the 2483.5 – 2500 MHz band. In particular, 2496-2690 MHz is used by advanced terrestrial wireless services in the United States.

It is imperative to limit any interference to the Primary services operating in this band.

Currently, the radiodetermination-satellite service is active, in the 2483.5 – 2500 MHz band, only from geostationary space stations serving parts of Region 3. It is uncertain at this time whether RDSS operation has had any effect on the other Primary allocated services.

U.S. VIEW: The USA is of the view that a global Primary allocation to the Radiodetermination-Satellite Service (RDSS) in the 2483.5 – 2500 MHz band may be feasible if the following conditions are met:

1) that ITU-R studies show conclusively that the operation of RDSS systems would not unduly constrain the operation and expansion of currently allocated services in the 2483.5 – 2500 MHz band;

2) that RDSS usage would never seek protection as a safety-of-life application and that the provisions of No. **4.10** would not be applicable in the 2483.5 – 2500 MHz band;

3) that amendments are made to the Radio Regulations, as necessary, to ameliorate any constraints on currently allocated services by the operation of the RDSS in the 2483.5 – 2500 MHz band.

Document WAC/023(31.03.09)

UNITED STATES

DRAFT PRELIMINARY VIEWS ON WRC-11

A.I. 1.25 to consider possible additional allocations to the mobile-satellite service in accordance with Resolution 231 (WRC-07)- Additional allocations in the mobile satellite service with focus on the bands between 4 GHz and 16 GHz

ISSUE: As allocations in the range of interest are fully in use by a variety of services other than the mobile satellite service, the issue is to what extent and under what conditions, both technical ad regulatory would it be possible to add the mobile satellite service to an allocation,

Background

Working Party 4C is the lead ITU-R Working Party for developing information related to Agenda Item 1.25 (WRC-11). It initiated this activity through set of Liaison statements ton other working parties requesting information on certain spectrum allocations of interest. The bands of interest were those which were potential candidates for additional Mobile Satellite Service allocations.

WP-4C has received responses from WP-4A(4C/154), WP-5A(4C/169), 5B(4C/164), WP-5C, WP-5D(4C/153), WP-7B(4C/150) , WP-7C(4C/157),WP-7D(C/148). In the Liaison from WP-4C certain bands were identified which were related to the services under the responsibility of the Working Parties to which they were sent. It was understood by these groups that these were the only bands that were of potential interest. In all cases the bands identified were being extensively used and would appear to present difficult sharing with the addition of a Mobile Satellite Service (MSS).

While a number of responses provide characteristics of services in the bands identified, they indicate a lack of knowledge of characteristics of MSS systems which were intending to use them. Such information was requested.

The Liaison Statements from the Working Parties also include reference to various protection criteria and related ITU-R Recommendations which are related to the services in the bands for which information was requested. These have been developed to provide for the sharing of the allocations by the services in the band whether of the same service or other services. It is apparent that if an MSS allocation were to be added to any of the allocations concerned they would need to conform to the referenced criteria.

There are no "clean: allocations. Therefore, the only allocations which could be used by the MSS would be those where it could be demonstrated that the intended applications would conform to the protection, and sharing criteria associated with the services already using the allocations.

Preliminary View

The following Preliminary Views can be stated:

1. The extent of use of the allocations of interest to the MSS under this agenda item is currently being established in the ITU-R.

2. The use of these allocations of interest have associated with them protection and sharing criteria which are applicable to the services already in the band.

3. The characteristics of potential MSS uses are not known.

4. An MSS allocation could be accommodated in any of the bands of interest, where compatibility studies, agreed upon by the relevant working parties taking into account the applicable protection criteria of the existing services in the band, demonstrate that sharing would be feasible.

Regulatory Issues

Document WAC/030(31.03.09)

WAC Informal Working Group (IWG)-4
Modifications to
NTIA's Preliminary View on Agenda Item 1.6 (see WAC/005 (13.01.09))

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.6: to review No. **5.565** of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution **950 (Rev.WRC-07)**, and to consider possible procedures for free-space optical-links, taking into account the results of ITU-R studies, in accordance with Resolution **955 (WRC-07)**[1]

ISSUE: The purpose of Resolution **950 (Rev. WRC-07)** is to review No. **5.565**, excluding frequency allocations, in order to update spectrum use between 275 and 3 000 GHz by the passive services. Currently, No. **5.565** describes the need for passive observations of spectral line emissions and spectral windows in various bands throughout the 275 – 1 000 GHz range by the radio astronomy service (RAS), the Earth exploration-satellite service (passive) (EESS), and the space research service (passive) (SRS). The footnote also describes the potential for additional spectral line and continuum bands in this range to be identified in the future. Resolution **950 (Rev. WRC-07)** extends its range of consideration to 275 – 3 000 GHz for RAS, EESS (passive), and SRS (passive) use, and invites ITU-R to conduct studies toward modifying No. **5.565**.

BACKGROUND: The current Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations presently exist above 275 GHz, although an entry in the Table for the range 275 – 1 000 GHz contains a reference to No. **5.565**:

> ***5.565*** *The frequency band 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:*
>
> – radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
>
> – Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz,

[1]This preliminary view only addresses the first part of the agenda item (passive services between 275 – 3 000 GHz), hereafter referred to as Agenda Item 1.6 (Res 950). The second part of the agenda item (free-space optical links), referred to as Agenda Item 1.6 (Res 955), is addressed in a separate document.

659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band. (WRC-2000)

Passive services currently utilize portions of the 275 – 3 000 GHz range for scientific observation of both spectral line and continuum emissions. Resolution **950 (Rev. WRC-07)** resolves to review No. **5.565** to update the spectrum use between 275 and 3 000 GHz by the passive services, but specifically excludes allocations in this range, taking into account future long-term requirements for active services.

U.S. VIEW: The United States supports the modification of No. **5.565** to include all appropriate bands of interest to RAS, EESS (passive), and SRS (passive) in the range 275 – 3 000 GHz based upon studies being conducted in Study Group 7. In updating Resolution **950 (Rev. WRC-07)**, the future long-term requirements of active services should be taken into account. (~~August 7, 2008~~February 23, 2009)

Document WAC/031(31.03.09)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 7: to consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: "Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks", in accordance with Resolution 86 (Rev.WRC-07)

ISSUE: List of networks with which coordination needs to be effected (No. 9.36 of RR)

BACKGROUND: The regulations currently in force - namely provisions Nos. **9.36** and **9.36.2** – indicate that the Bureau, when it examines a request for coordination in application of Nos. **9.34** – **9.38**, shall identify any administration with which coordination may need to be effected.

Provision No. **9.36.2** further specifies that *"in the case of coordination under Nos. **9.7**, **9.7A** and **9.7B**, the Bureau shall also identify the specific satellite networks or earth stations with which coordination needs to be effected. In the case of coordination under No. **9.7** the list of the networks identified by the Bureau under No. **9.27** is for information purposes only, to help administrations comply with this procedure."*

In this context, for sake of discussion assume that the coordination request of a network of administration A has been published and that administration B has been identified by the Bureau under No. **9.7** as one of the administrations with which coordination has to be effected.

As the list of the satellite networks of administration B provided by the Bureau is "for information purposes only", administration A will not necessarily know the complete list of networks of administration B that have to be considered until bilateral coordination between A and B is conducted. This is not desirable, especially because detailed coordination is often conducted between operators, whereas satellite networks are submitted to the ITU by administrations. Operator-to-operator coordination agreements are subsequently ratified by the administrations involved and a formal coordination meeting between administrations may never happen. Therefore the operator of administration A associated with the satellite network under consideration may never know the complete list of networks of administration B with which coordination is required.

Provision No. **9.36.2** stipulates that the Bureau identifies the satellite networks with which coordination needs to be effected in the framework of the coordination procedure foreseen in Article **9** (Section II) for the coordination forms **9.7** to **9.7B**. The Bureau uses for this identification either the "coordination arc" (CA) concept or the method described in Appendix **8** ($\Delta T/T > 6\%$). On the above basis, the BR establishes the list of affected administrations (No. **9.36**) and a list of satellite networks which may be affected by the network contained in the "incoming" coordination request. The latter list, however, may not be complete or definitive for a given coordination request. Under the provisions of No. **9.41** the administrations which are not included in the list under No. **9.36** may request their inclusion in this list, identifying networks outside the coordination arc for which the value of $\Delta T/T$ calculated by the method in Appendix **8** exceeds 6%.

In addition, administrations which are included in the list of **9.36** may at a later time request that, in addition to the networks included in the list of No. **9.36.2**, other networks should also be included in the coordination process. The latter case does not seem to be covered by the provisions of No. **9.41** which treats only cases of administrations not included in the first list established under No. **9.36** rather than the networks. Consequently, this problem needs to be solved by the administrations during bilateral coordination discussions. A further difficulty is that the additions under No. **9.41** to the list of the affected administrations can only be handled by addenda to the BR first publication under No. **9.38** at different times, after the first publication (see Nos. **9.41** and **9.42**). While the additionally affected administrations are in this way published and consequently known by all the administrations after the 4 month comment period, the complete list of networks to be considered is not available, as the list of networks originally published under No. **9.36.2** is not updated.

Having experienced the above difficulties, a Rule of Procedure (RoP) concerning the application of Provisions Nos. **9.41** and **9.42** has been established. This RoP is attached to the present document for information. (Annex 1). The RoP recognizes that under the current regulations the list of affected networks (No. **9.36.2**) cannot be considered as exhaustive. In addition, it is also recognized that when administrations disagree on the list of networks to be considered the problem can only be solved by the Bureau at the very end of the notification process (Article **11**, Nos. **11.32A**, and probably **11.41**)
It is noted that the wording of No. **9.41** excludes from its application those administrations which have been selected for inclusion in the list of affected administration under No. **9.36**. These administrations may also find that some of their networks which were not included in the list of No. **9.36.2** – since they were outside the coordination arc – should be included into the coordination procedure as their $\Delta T/T$ value exceeds the threshold value of 6%. Logically for these administrations the concept of No. **9.41** should also apply. The current Rule of Procedure on Nos. **9.41** – **9.42** recognizes this problem (see §.2.1 of the RoP in Annex 1) and suggests that such cases should be considered under No. **9.52** (disagreement communicated to the initiating administration). For such a case the Rule states that the administration should, *"while applying No. 9.52 and without having to apply No. 9.41, bring into the bilateral coordination discussion any of their networks located outside the coordination arc which meet the $\Delta T/T > 6\%$ criterion."*

In view of the above considerations, it seems logical and necessary to open the application of the concept of No. **9.41** also for those administrations which have already been identified as affected administrations under No. **9.36**, to allow for the possible addition of networks which were not identified under No. **9.36.2** where the only criterion applied was the coordination arc.
In summary, an improvement to the process would be for the list of networks identified under No. **9.36.2** with respect to coordination under No. **9.7** to be considered provisional and not "for information only". Currently, according to No. **9.41**, within the period of four months following the publication of a coordination request, administrations are able to request that an administration be added or removed from the list generated by the Bureau. In an improved process, this possibility would be expanded so that requests could also be made to add or remove networks from the list generated by the Bureau.[1] The Bureau would then study all these requests (see No. **9.42**) and subsequently publish, at the earliest possible date, a definitive list of administrations and corresponding satellite networks with which coordination would be required.

Consequential changes to Article 9 and Appendix 5 of the Radio Regulations will be required in order to implement these proposals.

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[1] Requests for addition of an administration should also include the specification of the networks of this administration to be considered in the coordination.

U.S. VIEW: The United States is of the view that changes to Article 9 and Appendix 5 of the Radio Regulations are required in order to allow that a definitive list of administrations and corresponding satellite networks with which coordination needs to be effected be generated as early as possible in the coordination process.

Annex 1
Extracts from the Rules of Procedure

9.41 – 9.42

1 The Board has closely studied the situation and the reasons that led to the adoption of the coordination arc (CA) principle at WRC-2000 and in particular Nos. **9.41** and **9.42**. In doing so, it was guided by *recognizing* and *considering* of Resolution **55 (WRC-2000)**, by Article **9** in general, and by Nos. **9.36**, **9.36.2** and Appendix **5**.

2 The Board has accordingly arrived at the following conclusions regarding the application of the provisions of No. **9.41** by an administration which considers that its name should have been identified under No. **9.36** in the context of a request for coordination stemming from the application of No. **9.7** (including for cases not having to do with application of coordination arc):

2.1 Once an administration has been identified and included in the coordination requirements of a particular assignment published in a coordination special section, coordination is to be effected between administrations (not between networks) who decide, based on Appendix **5**, which networks they wish to take into account in their bilateral discussions. The list of satellite networks published under No. **9.36.2** is intended for information purposes only, and thus should not be considered as exhaustive. Administrations identified on the basis of CA can, while applying No. **9.52** and without having to apply No. **9.41**, bring into the bilateral coordination discussions any of their networks located outside of the coordination arc which meet the $\Delta T/T > 6\%$ criterion. In this case, no action is undertaken by the Bureau under No. **9.42**.

2.2 Administrations not identified by CA are entitled, based on the $\Delta T/T > 6\%$ criterion, to be included in coordination, in application of Nos. **9.41** and **9.42**. Requests under No. **9.41** must be substantiated by $\Delta T/T > 6\%$ calculations. To minimize the administrative burden on the Bureau and administrations, it shall be deemed sufficient for an administration wishing to be added in a coordination request under No. **9.41** to provide $\Delta T/T > 6\%$ calculations for only one pair of assignments for each satellite network to be further considered in the coordination process (a pair consisting of one assignment of the published network and one assignment of the network of the requesting administration); the Bureau will then examine all assignments of the specific networks of the requesting administration and then establish coordination requirements for all the assignments of the network referred to in the publication vis-à-vis the requesting administration under No. **9.42** commensurate with the results of such examination.

3 In case of continuing disagreement between the administration of the published network and an administration involved in coordination under Nos. **9.7** or **9.42**, which cannot be resolved between them at coordination stage, the two administrations may communicate to the Bureau a mutually agreed list of networks to be taken into account for examination under No. **11.32A** at notification stage. If the two administrations cannot agree on such a list, the Board decided that examination under No. **11.32A** at notification stage will be carried out with respect to all networks of the latter administration, indicated in application of § 2 of this Rule, whose assignments, identified in accordance with § 1 of Appendix **5**, have $\Delta T/T$ greater than 6%.

Document WAC/032(31.03.09)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 7: to consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: "Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks", in accordance with Resolution 86 (Rev.WRC-07)

ISSUE: Application of Nos. 9.51 and 9.52 with respect to coordination under No. 9.7

BACKGROUND: For sake of discussion assume that the coordination request of a network of administration A has been published and that administration B has been identified by the Bureau under No. **9.7** as one of the administrations with which coordination has to be effected.

Then, according No. **9.51**, administration B, within four months of the publication of the coordination request, shall "either inform the requesting administration of its agreement or act under No. **9.52**", with the latter meaning that administration B will express its disagreement, i.e. the need for coordination.

In the vast majority of cases, administrations respond in accordance with No. **9.52** without providing any reasons for their disagreement. It is certainly the easiest and safest way to proceed.

It follows from the above that the required formal answer under Nos. **9.51** or **9.52** has lost its value in the framework of GSO to GSO coordination. An improvement to this aspect of the process can be realized by lifting the mandatory nature of this requirement for coordination requests made under No. **9.7** (GSO vs. GSO).

In an improved process, after the coordination request of a satellite network of administration A is published together with the initial list of administrations and corresponding provisional list of satellite networks with which coordination has to be effected, administrations would review this list. In case an administration wants to add or remove itself and/or a network, then it would send this request to the Bureau, as well as to administration A, within four months of the date of publication of the coordination request. However, if an administration agrees with the initial list of administrations and provisional list of corresponding networks published by the Bureau, no action would be required. In particular, an administration already included in the list would not be removed from the final list due to lack of response under No.**9.52** as such lack of a response would be understood by the Bureau to mean that this administration believes that coordination with one or more of its networks is required. Removing the requirement to respond under No. **9.52** will eliminate a significant amount of correspondence that in most cases does not contribute in any way to expedite coordination process.

Consequential changes to Article 9 of the Radio Regulations will be required in order to implement these proposals.

U.S. VIEW: The United States is of the view that changes to Article 9 of the Radio Regulations are required so that: (1) if an administration, in respect to a coordination request from another administration, is not in a position to give its agreement under No. **9.51** then this administration would not need to respond to such a request; and (2) the lack of such a response would be understood by the Bureau to mean that this administration believes that coordination with one or more of its networks is required.

ATTACHMENT 2
to FCC Public Notice DA 09-763

Draft Preliminary Views formulated and approved within the National Telecommunications and Information Administration:

Document WAC/005(13.01.09)

August 14, 2008

Ms. Helen Domenici
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

Dear Ms. Domenici:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch agencies, has approved the release of a package of Draft Executive Branch Preliminary Views for 2011 World Radiocommunication Conference (WRC-11). These draft preliminary views consider the Federal agency inputs toward the development of U.S. Proposals for WRC-11. The enclosure contains preliminary views for the following agenda items:

a) Agenda Item 1.5 (Resolution **954 (WRC-07)** – Harmonization of spectrum for use by terrestrial electronic news gathering systems);
b) Agenda Item 1.6 (Resolution **950 (WRC-07)** – Consideration of the use of the frequencies between 275 and 3 000 GHz);*
c) Agenda Item 1.8 (Resolutions **731 (WRC-2000)** and **732 (WRC-2000)** – Consideration of the progress of ITU-R studies concerning the technical and regulatory issues relative to the fixed service in the bands between 71 GHz and 238 GHz, taking into account Resolutions **731 (WRC-2000)** and **732 (WRC-2000)**;
d) Agenda Item 1.11 (Space Research Service (Earth-to-space) systems within the band 22.55-23.15 GHz);
e) Agenda Item 1.12 (Resolution **754 (WRC-07)** – Consideration of modification of the aeronautical component of the mobile service allocation in the 37-38 GHz band for protection of other primary services in the band);
f) Agenda Item 1.13 (Resolution **551 (WRC-07)** – Use of the band 21.4-22 GHz for broadcasting-satellite service and associated feeder-link bands in Regions 1 and 3);
g) Agenda Item 1.19 (Resolution **956 (WRC-07)** – Regulatory measures and their relevance to enable the introduction of software-defined radio and cognitive radio systems);
h) Agenda Item 1.20 (Resolution **734 (WRC-07)** – Studies for spectrum identification for gateway links for high-altitude platform stations in the range from 5 850 to 7 075 MHz); and
i) Agenda Item 1.22 (Resolution **953 (WRC-07)** – Protection of radiocommunication services from emissions by short-range radio devices).

*This preliminary view only addresses the first part of the agenda item (passive services between 275 – 3 000 GHz), hereafter referred to as Agenda Item 1.6 (Res 950). The second part of the agenda item (free-space optical links), referred to as Agenda Item 1.6 (Res 955), is addressed in a separate document.

This package is forwarded for your consideration and review by your WRC-11 Advisory Committee. Darlene Drazenovich of my staff is the primary contact for NTIA.

Sincerely,

(Original Signed August 14, 2008)
Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosure

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.5: to consider worldwide/regional harmonization of spectrum for electronic news gathering (ENG), taking into account the results of ITU-R studies, in accordance with Resolution **954 (WRC-07)**

ISSUE: To review the needs of ENG systems, to decide if harmonization is possible, and in what potential bands such harmonization is appropriate. This issue may also lead to requests from administrations for consideration of additional spectrum allocations.

BACKGROUND: The issue of spectrum for ENG applications has been a long-standing issue within the ITU and has been prominent for several WRC study cycles. WRC-07 decided to include an agenda item that would look at possible global/regional harmonization. The need for global/regional harmonization must also take into account advances in technology, which may account for operations that are more efficient.

There are several different broadcasting services, which operate under the umbrella of ENG and each will have its own unique requirements for harmonization based on deployment, technical parameters, and user density.

U.S. VIEW: The United States supports reviewing the requirements developed in WP 6A to determine if harmonization is feasible on a regional/global basis for ENG systems. The United States supports studies on technologies that maximize efficient and flexible use of frequencies at the national level in lieu of global/regional identification of frequency bands. If such harmonization is required and feasible, the United States supports focusing on studying the impact of identifying in the RR harmonized spectrum for ENG systems. Such identification should focus on bands where ENG systems have already been identified in ITU-R recommendations in the fixed and mobile services to determine which are appropriate, given the needs of the differing ENG systems (covered by this agenda item and Resolution **954 (WRC-07)**) while protecting existing services. (August 7, 2008)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.6: to review No. **5.565** of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution **950 (Rev.WRC-07)**, and to consider possible procedures for free-space optical-links, taking into account the results of ITU-R studies, in accordance with Resolution **955 (WRC-07)**†

ISSUE: The purpose of Resolution **950 (Rev. WRC-07)** is to review No. **5.565**, excluding frequency allocations, in order to update spectrum use between 275 and 3 000 GHz by the passive services. Currently, No. **5.565** describes the need for passive observations of spectral line emissions and spectral windows in various bands throughout the 275 – 1 000 GHz range by the radio astronomy service (RAS), the Earth exploration-satellite service (passive) (EESS), and the space research service (passive) (SRS). The footnote also describes the potential for additional spectral line and continuum bands in this range to be identified in the future. Resolution **950 (Rev. WRC-07)** extends its range of consideration to 275 – 3 000 GHz for RAS, EESS (passive), and SRS (passive) use, and invites ITU-R to conduct studies toward modifying No. **5.565**.

BACKGROUND: The current Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations presently exist above 275 GHz, although an entry in the Table for the range 275 – 1 000 GHz contains a reference to No. **5.565**:

> **5.565** The frequency band 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:
>
> – radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
>
> – Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.
>
> Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive

† This preliminary view only addresses the first part of the agenda item (passive services between 275 – 3 000 GHz), hereafter referred to as Agenda Item 1.6 (Res 950). The second part of the agenda item (free-space optical links), referred to as Agenda Item 1.6 (Res 955), is addressed in a separate document.

services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band. (WRC-2000)

Passive services currently utilize portions of the 275 – 3 000 GHz range for scientific observation of both spectral line and continuum emissions. Resolution **950 (Rev. WRC-07)** resolves to review No. **5.565** to update the spectrum use between 275 and 3 000 GHz by the passive services, but specifically excludes allocations in this range.

U.S. VIEW: The United States supports the modification of No. **5.565** to include all appropriate bands of interest to RAS, EESS (passive), and SRS (passive) in the range 275 – 3 000 GHz based upon studies being conducted in Study Group 7. (August 7, 2008)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.8: to consider the progress of ITU-R studies concerning the technical and regulatory issues relative to the fixed service in the bands between 71 GHz and 238 GHz, taking into account Resolutions **731 (WRC-2000)** and **732 (WRC-2000)**

ISSUE: The intent of this agenda item is to study compatibility between passive and active services and develop sharing criteria for co-primary active services in bands above 71 GHz. In particular, it is important to study the spectrum requirements for active services for which the technology will be commercially available at a future date. Based on proposals and documentation available at WRC-07 it is likely that some administrations may seek to develop sharing criteria for the radio regulations in the form of pfd limits on space service downlinks.

BACKGROUND: WRC-2000 adopted Resolutions **731** and **732** as part of the conference decisions on the allocation of frequency bands above 71 GHz to the Earth exploration-satellite (passive) and radio astronomy services resulting in an overall rearrangement of the allocation tables in Article **5** of the Radio Regulations. These resolutions became necessary because the ITU-R was not able to fully evaluate for the active services (e.g., fixed, mobile, radiolocation, etc.), the new arrangement of their allocations vis-à-vis the passive allocations or each other. Therefore, the conference decided to adopt these two resolutions providing for further study and possible action in the future when active services technology and emerging requirements become better known. Since that time, millimeter wave spectrum above 71 GHz has become the subject of increasing interest for commercial use due to its unique propagation characteristics and the wide bandwidth available for carrying telecommunications traffic. New technologies are now emerging that offer the possibility of using these higher frequency bands for fixed wireless applications, taking advantage of the wide bandwidths available to support applications such as extremely high speed data transmission (e.g., data rates in the 1 to 10 Gbps range) for short distance (e.g., < 1-2 km). Several administrations have made or are making provisions for such wideband terrestrial fixed wireless applications.

In a somewhat unique set of circumstances, WRC-07 did not adopt a Resolution to define this agenda item. Therefore, the definition and scope of the agenda item is unclear.

U.S. VIEW: The United States supports ITU-R studies concerning the fixed service bands between 71 and 238 GHz. The United States supports protection of the existing services allocated within this frequency range. (August 7, 2008)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.11: to consider a primary allocation to the space research service (Earth-to-space) within the band 22.55-23.15 GHz, taking into account the results of ITU-R studies, in accordance with Resolution **753 (WRC-07)**

ISSUE: Resolution **753 (WRC-07)**, "Use of the band 22.55-23.15 GHz by the space research service," calls for consideration of sharing between space research service systems operating in the Earth-to-space direction and the fixed, inter-satellite, and mobile services in the band 22.55-23.15 GHz, with a view to consider the inclusion of the sharing criteria within the Radio Regulations and appropriate modifications to the Table of Frequency Allocations.

BACKGROUND: CITEL proposed this agenda item to WRC-07 in order to fulfill a requirement for space research service (SRS) uplink spectrum. SRS missions in near-Earth-orbit, including missions in transit to the moon and at or near the moon, will operate downlink (space-to-Earth) transmissions in the 25.5-27.0 GHz SRS allocation. This 1.5 GHz wide downlink band will be used for both scientific data retrieval and voice/video communication with the Earth. However, there is a need for a companion uplink (Earth-to-space) band to provide the mission data, command and control links for these missions. Due to the potential for many concurrent exploration-related systems and the large bandwidth requirements of these systems, especially those supporting manned missions, an uplink bandwidth of up to 600 MHz will be needed. Allocating sufficient primary SRS frequency spectrum in the 22.55-23.15 GHz band will provide the space exploration initiatives adequate uplink (Earth-to-space) bandwidth capacity in a band that is paired with the inter-satellite service and thus is a reasonable companion to the primary SRS 25.5-27.0 GHz space-to-Earth band.

Resolution **753 (WRC-07)** calls for sharing studies between SRS (Earth-to-space) and the fixed, inter-satellite and mobile services in the band 22.55-23.15 GHz to determine appropriate criteria which will provide for sharing between a new SRS (Earth-to-space) allocation and the existing services in the 22.55-23.15 GHz band. These sharing studies have been initiated in ITU-R Working Party 7B, the responsible group for CPM studies in support of WRC-11 agenda item 1.11.

U.S. VIEW: The United States supports a new SRS (Earth-to-space) primary allocation in the band 22.55-23.15 GHz taking into account the results of ITU-R studies. (August 7, 2008)

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.12: to protect the primary services in the band 37-38 GHz from interference resulting from aeronautical mobile service operations, taking into account the results of ITU-R studies in accordance with Resolution **754 (WRC-07)**

ISSUE: Resolution **754 (WRC-07)**, "Consideration of modification of the aeronautical component of the mobile service allocation in the 37-38 GHz band for protection of other primary services in the band," calls for consideration of the compatibility of the aeronautical mobile service (AMS) with other primary services in the band 37-38 GHz in order to determine appropriate compatibility criteria for inclusion within the Radio Regulations or an appropriate modifications to the Table of Frequency Allocations.

BACKGROUND: Space research service (SRS) earth station receivers are being implemented in the 37-38 GHz band to support manned missions, for both near Earth and deep space distances. Use of the wider bandwidth available in the 37-38 GHz band is required to support the increasing data requirements of planned manned missions.

Preliminary analysis within ITU-R Working Party 7B has shown that aeronautical mobile stations (assuming parameters from lower bands) are capable of causing unacceptable levels of interference for significant periods whenever they are within-line-of-sight of an SRS receiving earth station. In particular, SRS earth station receivers operating in the 37-38 GHz band have a very low interference threshold. Protection criteria applicable to these SRS Earth stations operating with either deep space or non-deep-space missions are contained in ITU-R recommendations. The operation of an aeronautical mobile station exceeding the protection criteria of the SRS for an extended period could jeopardize the success of a manned or scientific space mission. WRC-07 approved this agenda item based on information that no aeronautical mobile systems operate or plan to operate in the 37-38 GHz band.

CITEL proposed this agenda item at WRC-07 with the intent to exclude the AMS from the 37-38 GHz band in order to protect the other services using this band, particularly the space research service. Preliminary studies in the ITU have shown that sharing with traditional AMS systems is not feasible if they were to operate in the band. However, since WRC-07 adopted this agenda item, the aviation industry is considering several candidate bands, which includes the 37-38 GHz band, for a newly identified airborne application. If studies show this application can operate without exceeding applicable interference thresholds, it may be feasible to establish sharing criteria that protects the other primary services in the band 37-38 GHz.

Resolution **754 (WRC-07)** calls for sharing studies between the AMS and the SRS, fixed service, FSS and MS in the band 37-38 GHz to determine appropriate criteria to ensure the protection of the other primary services from AMS operations in the band 37-38 GHz.

U.S. VIEW: The United States supports sharing studies in the band 37-38 GHz to determine appropriate compatibility criteria for the AMS. If the studies show that sharing is feasible with

particular AMS applications, support the establishment of sharing criteria that both protects the other primary services in the band 37-38 GHz, as well as allows for such compatible AMS applications. However, if the studies show that sharing is not feasible, support the suppression of the AMS from the 37-38 GHz band. (August 8, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.13: to consider the results of ITU-R studies in accordance with Resolution **551 (WRC-07)** and decide on spectrum usage of the 21.4-22 GHz band for the broadcasting satellite service and the associated feeder link bands in Regions 1 and 3

ISSUE: **Resolution 551 (WRC-07)**, "Use of the band 21.4-22 GHz for the broadcasting-satellite service and associated feeder-link bands in Regions 1 and 3," calls for continuation of technical and regulatory studies on harmonization of spectrum usage, including planning methodologies, coordination procedures or other procedures, and broadcasting-satellite service (BSS) technologies in the 21.4-22 GHz band and associated feeder-links, considering that *a priori* planning is not necessary and should be avoided if it prevents flexible use of the band and that interim arrangements are on a first-come, first-served basis. Resolution **551 (WRC-07)**, also calls for WRC-11 to review the results of the studies and decide the usage of the 21.4-22 GHz band and the associated feeder link bands in Regions 1 and 3.

BACKGROUND: Region 1 and 3 countries proposed this item for the WRC-11 agenda. WARC-92 allocated the band 21.4-22 GHz in regions 1 and 3 to the BSS on a primary basis beginning April 1, 2007. In Regions 1 and 3, the BSS shares with the fixed service (FS) and mobile service (MS), which are also allocated in the band on a primary basis; in Region 2 the band is allocated only to the FS and MS on a primary basis. No. **5.530 (WRC-07)** subjects the BSS allocation to the provisions of Resolution **525 (WRC-07)**, the Annex of which sets out interim procedures for the introduction of BSS high definition television (HDTV) systems in this band. While Resolution **525 (WRC-07)** subjects BSS (HDTV) systems to applicable procedures under Articles **9** and **14**, it exempts them from coordination procedures with terrestrial systems under **RR 9.11** until definitive procedures are established by the next conference. Resolution **525 (WRC-07)** also specifies that other services operating in the band may do so on condition of not causing harmful interference to BSS (HDTV) systems and that they cannot claim protection from such systems, thus effectively making the BSS (HDTV) systems "super-primary" in this band in Regions 1 and 3. In addition, footnote No. **5.347A** states that **Resolution 739 (WRC-07)**, that calls for administrations to take all reasonable steps to ensure compatibility with radio astronomy observations in bands adjacent or neighboring to certain satellite downlink bands, applies to this band. Table 1 of **Resolution 739** (the list of band pairs that is applicable to geostationary satellite systems) includes the pair 21.4-22.0 GHz (BSS) and 22.21-22.5 GHz (radio astronomy service).

U.S. VIEW: The United States supports the protection of existing services from in-band interference and unwanted emissions. (August 8, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.19: to consider regulatory measures and their relevance, in order to enable the introduction of software-defined radio and cognitive radio systems, based on the results of ITU-R studies, in accordance with Resolution **956 (WRC-07)**

ISSUE: Resolution **956 (WRC-07)** calls for studies into the potential need for regulatory measures regarding software-defined radio (SDR) technologies and/or cognitive radio systems (CRS), and specifies that the results of these studies should be reviewed at WRC-11 for possible action. The resolution also specifies potential issues with cognitive radio systems, including the possible need for a worldwide pilot channel for "harmonization" of such systems.

BACKGROUND: Agenda item 1.19 originated from various proposals at WRC-07. One proposal focused on cognitive radio and the possibility of a worldwide allocation for a "cognition supporting pilot channel (CPC)" – essentially, a pilot channel which would provide radio systems with cognitive capabilities with information regarding locally-available radio spectrum. Another proposal suggested more general studies regarding both cognitive radio and software-defined radio technologies. The ITU-R has not reviewed the studies mentioned in Resolution **956 (WRC-07)** *considering (j)* regarding a CPC and allocation database.

U.S. VIEW: The United States supports ITU-R studies within Working Party 1B on the relevance of regulatory measures for software-defined radio and cognitive radio systems. The United States does not support regulatory measures leading to allocations, including identification footnotes, for software-defined radio and cognitive radio systems, as these are technologies, each with its own attributes, and not radiocommunication services. In addition, the United States encourages administrations to contribute technical studies to other ITU-R working parties regarding SDR and CRS technologies, their functionalities, the key technical characteristics, requirements, performance, and benefits to the various ITU-R services. As these technologies may be used in conjunction with unlicensed/short range device (SRD) systems, it may be important to follow studies on WRC-11 agenda item 1.22 on SRD. (August 7, 2008)
